ABSTRACT

The present method and apparatus use image processing to determine information about the position of a designated object. The invention is particularly useful in applications where the object is difficult to view or locate. In particular, the invention is used in endoscopic surgery to determine positional information about an anatomical feature within a patient's body. The positional information is then used to position or reposition an instrument (surgical instrument) in relation to the designated object (anatomical feature).

The invention comprises an instrument which is placed in relation to the designated object and which is capable of sending information about the object to a computer. Image processing methods are used to generated images of the object and determine positional information about it. This information can be used as input to robotic devices or can be rendered, in various ways (video graphics, speech synthesis), to a human user. Various input apparatus are attached to the transmitting or other used instruments to provide control inputs to the computer.